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Results of the Archbold Expeditions. No. 73 Birds of the Archbold Biological Station, Lake Placid, Florida

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INTRODUCTION

The Archbold Biological Station, comprising some 1050 acres, is situated in Highlands County, south-central Florida, about 10 miles south of the town of Lake Placid. It lies at the southern end of the low ridge that runs southward through central Florida. Red Hill, the highest part of the Station, reaches an altitude of 222 feet. South of the property the elevation falls away to lower pine flatlands and eventually to the Big Cypress Swamp and the Everglades.

The two dominant ecological types on the Archbold Biological Station, in undisturbed areas, are high pinelands and Florida sand scrub. In the former the predominant tree is a form of long-leaved or slash pine; the local species is said to be *Pinus elliotti* (figs. 1, 3-5). Where the soil is poorer, scrub vegetation prevails; here the sand pine (*Pinus clausa*) may be the dominant species (fig. 2). Saw palmetto (*Serenoa*) is conspicuous in the undergrowth of both habitats, and various species of scrub oak (*Quercus*) are very abundant. Harper (1927, p. 80), in his excellent discussion of southern Florida, has pointed out that farther north in the state the boundaries between sand scrub and high pinelands are rather clearly demarked, whereas in Highlands County, at the southern terminus of these plant associations in interior Florida, "the two types often intergrade in a perplexing fashion." This is true of some sections of the Archbold Station, but there are large areas where the sand pine and the slash pine are mutually exclusive.

A county road flanked by wide grassy areas runs from north to south through the Station. Approximately one-third of the area lies to the west of this road, including the main laboratory buildings and cottages at the southwest corner. The western part of the property is somewhat lower than the eastern, and at the northwestern corner the elevation falls to about 127 feet above sea level. A cement-lined drainage ditch (see map in Bogert, 1947, p. 3) some 4 or 5 feet deep was constructed the length of the western part of the property, along with side drainage ditches. This ditch contains some running water at all times of the year. It drains into a small lake north of the property. The entire Station is dissected by wide,



FIG. 1. Occasional grassy openings occur, but usually there is a dense understory of palmettos or scrub oak.

sandy fire lanes which are disked periodically and provide a large extent of "edge" attractive to birds and other wild life. The Station has been carefully preserved from fire and, as a result, the drying effect of the ditches is somewhat counterbalanced by the dense vegetation that has sprung up. Ecologists estimate that even in primitive times the Florida high pinelands were burned over on the average of every two years by fires caused by lightning (Davis, 1943). The older trees, of course, lived through all but the worst of these conflagrations. At present fires are more frequent because of human activities, but their extent is smaller, as the pinelands are so much broken up by pastures, citrus groves, and the

like. Sandier areas of scrub are less subject to fire, for there may not be enough ground cover to support a blaze, but occasionally a crown fire sweeps through them. The entire area encompassed in the Archbold Station has been free of fires since 1934, at which time a small area near the plaza was burned. Most of the slash pines are of moderate size, but a few reach 7 feet in circumference.

The northwestern part of the Station, as stated above, is the lowest and, although drainage ditches run through it, the understory vegetation is more luxuriant than elsewhere (fig. 3). Several species of shrubs, includ-

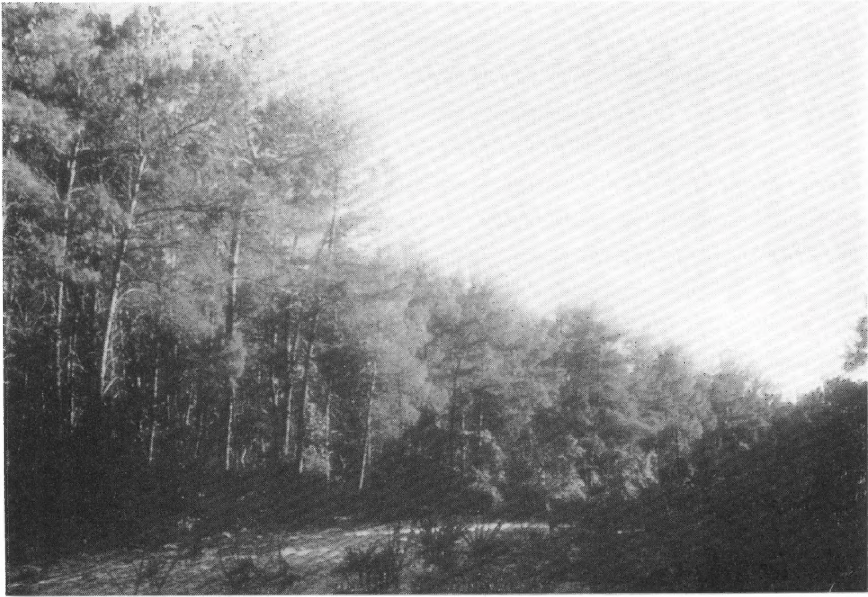


FIG. 2. Stand of sand pine in northeastern part of Station. Fire lane in foreground.

ing a smooth-leaved holly or gall berry (*Ilex*), the fruit of which is eaten by birds, and magnolias or bays (*Magnolia*) grow there abundantly, while the roads and other openings are densely covered by grass. In the drier parts of the Station they are frequently sandy, or support a few xerophytic plants such as the prickly pear cactus (*Opuntia*). The vegetation of this northwestern corner thus approaches the type known as "bay-gall swamp." Birds seen only in this part of the property, which reflect the moister conditions found there, are the Carolina Wren, Barred Owl, Prairie Warbler, Orange-crowned Warbler, and Catbird. There is also a small, grass-filled pond, which contains a few inches of water. It is quite

surrounded by trees and seems to be of little or no importance to birds.

As noted in more detail in the annotated list that follows, human activities affect very markedly the bird life of the Station. The area near the buildings contains extensive lawns which are sprinkled with water during dry weather. The cottages and other buildings are surrounded by various shade and citrus trees, as well as vegetable gardens. Scratch feed is provided daily on one of the lawns and attracts such birds as jays, Red-winged Blackbirds, and Bobwhites. The grass-lined main drive leading

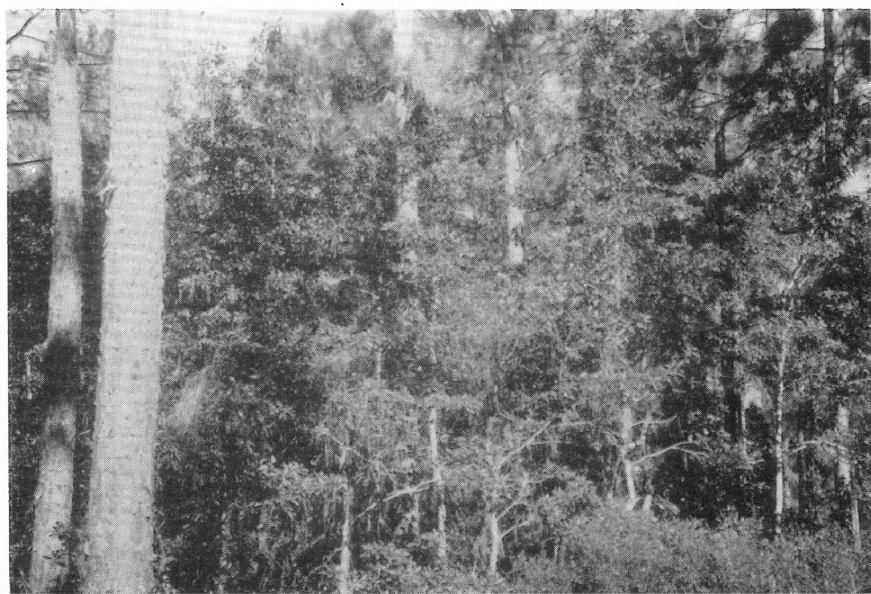


FIG. 3. Dense undergrowth of bay (*Magnolia*) and other species in the moist northwestern corner of the Station.

from the buildings out to the county road is bordered by lawn and flanked by scrub which includes some introduced bamboo (fig. 4). Here one finds Towhees, Scrub Jays, and the like in greater numbers than elsewhere. The main drive crosses the county road and continues up to Red Hill, part of which has been cleared off for experimental plantings of pineapple, citrus, mahogany, and other introductions. Here are fallow, weed-filled fields which attract Chipping Sparrows, Maryland Yellowthroats, and Palm Warblers. A large specimen of the Asiatic silk-cotton tree (*Bombax*) was covered with large, red, nectar-filled flowers in winter.

The Archbold Station is ecologically unsuitable for most of the spectacular birds, and especially the water birds that one associates with

Florida, though they may be seen a few miles away. Nevertheless, so great has been the destruction of natural habitat in southern Florida that this Station may prove eventually to be the only large undisturbed tract of pine in that part of the state. Already citrus groves surround it to the south and east, and semi-cleared areas to the west and north. A few wide-ranging birds may have deserted the Station as a result. Among those possibly in this category are the Red-cockaded and the Pileated Woodpeckers.



FIG. 4. Introduced yuccas and bamboos supplement the brushy cover along the entrance drive.

My field work at the Archbold Station was from March 27 to April 29, 1943, and, except for four days, from December 27, 1955, to January 10, 1956. In 1943 I studied the Scrub Jay (Amadon, 1944b), and only a casual list was kept of other birds. In the short period of field work in the winter of 1955–1956, on the other hand, every effort was made to obtain as complete a list as possible of the birds on the property at that time. The present paper was originally intended only as an annotated list of the winter bird life of the Station, but it later seemed worth while to list the summer residents and transients, so far as known.

Mr. Richard Archbold, the founder and president of the Archbold Biological Station, did everything possible to facilitate my investigations, and I have also benefited from certain of his own observations on the local

birds. I am also indebted to various members of his staff, in particular Mr. Frank Rinald and Mr. Leonard Brass. The latter, who is the station botanist, was especially helpful. Dr. Frank Hartman of the Ohio State University spent about three weeks at the Archbold Station in the winter of 1945-1946 making investigations on the endocrine glands of birds. I was able to use a list of the few specimens he collected. Dr. Austin L. Rand and Mr. Per Höst, while studying the mammals of Highlands County (Rand and Höst, 1943), prepared a manuscript account of the birds observed, which has been at my disposal. They mention a few species



FIG. 5. Clump of palmettos to west of Station, which is used as a roost by Red-winged Blackbirds.

of birds as nesting on the Station, but most of their report is concerned with coastal and marshland birds not found on the property itself. Prof. Charles L. Remington of Yale University also aided in the field work and made available some interesting observations.

WINTER BIRDS

ORDER CICONIIFORMES, HERONS AND IBISES

The Archbold Station has virtually no habitat favorable for water birds. The drainage ditches along the western side of the property do contain water, even in the winter months, but are narrow, deep, and in most places closely flanked by palmettos. Rinald told me that on occasion herons do nonetheless visit these drainage ditches. He has even seen a Great Blue Heron (*Ardea herodias*) there, and Remington has noted Belted Kingfishers (*Megaceryle alcyon*).

To the west of the Station, shallow depressions among the scattered pines become filled with water during rainy periods and attract Sandhill Cranes (*Grus mexicanus*), as well as a few herons and ibises, to the immediate vicinity of the Station.

FAMILY CATHARTIDAE, VULTURES

TURKEY VULTURE (*Cathartes aura*)

The Turkey Vulture is to be seen above all parts of the Archbold property, as indeed over most places in Florida. Whenever I visited the clearing and gardens on Red Hill, one was to be seen foraging just above the crowns of the few remaining trees.

BLACK VULTURE (*Coragyps atratus*)

The area provides rather thin pickings for the Black Vulture, but occasionally a pair or a single bird is seen over the property.

FAMILY ACCIPITRIDAE, HAWKS

Genus *Accipiter*

Individuals of this genus were seen on three occasions but never under circumstances that permitted one to be certain whether they were Cooper's or Sharp-shinned Hawks.

RED-TAILED HAWK (*Buteo jamaicensis*)

Single individuals were observed soaring above or across the property on two occasions. The species is said to have nested there.

RED-SHOULDERED HAWK (*Buteo lineatus*)

The Station is, on the whole, somewhat too dry to suit the Red-shouldered Hawk, except along the western boundary. One tame and noisy individual was frequently present in the trees near the buildings or perched on the poles along the adjacent railroad.

MARSH HAWK (*Circus cyaneus*)

Marsh Hawks are very common in Florida in the winter and not infrequently cross even such unsuitable areas as the pine woods of the Archbold Station. The wide fire lanes provide them with some foraging areas, and one was flushed from such a situation.

FAMILY FALCONIDAE, FALCONS

AMERICAN KESTREL (*Falco sparverius*)

The American Kestrel likes rather open areas and is to be found mostly along the roads or edges of the Archbold tract. One was wintering in the open gardens on top of the hill and was to be seen day after day perched on the same short projecting stub on a large pine tree.

FAMILY PHASIANIDAE, QUAILS, ETC.

BOBWHITE (*Colinus virginianus*)

A covey of Bobwhites was resident near the headquarters of the Station, where they relied to some extent on food provided for them. The only other flock encountered was near the northwestern corner of the property.

FAMILY MELEAGRIDAE, TURKEYS

WILD TURKEY (*Meleagris gallopavo*)

Although I do not recall seeing signs of Wild Turkeys when I was at the Station in 1943, their tracks are now common on all the sandy fire lanes, particularly in the higher area to the east.

FAMILY CHARADRIIDAE, PLOVERS

KILLDEER (*Charadrius vociferus*)

The Killdeer is apt to visit any open area at one time or another, and on December 28 one flushed noisily from the asphalt plaza in front of the main Station building.

FAMILY COLUMBIDAE, PIGEONS

MOURNING DOVE (*Zenaidura macroura*)

The Mourning Dove is one of the characteristic birds of the area. Although more commonly seen around the clearings, they are not infrequently flushed from denser scrub. Usually two or three would be recorded in an hour's walk.

GROUND DOVE (*Columbigallina passerina*)

Two pairs of Ground Doves were regular features on the lawn each evening, eating the scratch feed provided. The species was occasionally encountered along the fire lanes or roads elsewhere on the property.

FAMILY STRIGIDAE, OWLS

SCREECH OWL (*Otus asio*)

In 1943 a pair of Screech Owls was living in a hole in a fence post on the property. They are probably fairly common, but I did not see or hear any during my second visit. On January 10, during a period when the thermometer went below freezing each night, Archbold told me that one, in the gray phase, was present in the garage early in the morning.

GREAT HORNED OWL (*Bubo virginianus*)

This owl is a fairly common permanent resident on the Station. Often they begin hooting in a subdued manner a full hour before dark. At times, judging from the differences in pitch, a pair would hoot in quick succession—the lower-pitched male first (see A. H. Miller, 1934), followed immediately by the higher-pitched female. After dark the owls sometimes moved down into the area around the buildings. At 11 P.M. on December 31 we were attracted outside not by the usual hooting notes but by a loud, harsh, single-syllabled cry uttered at frequent intervals. Apparently the owl was perched on a flagpole, but we did not get a view of it before it was frightened away. Archbold thought it was a Great Horned Owl, and Charles L. Remington, who was also present, stated that the sound we heard was definitely not the harsh call of the Barn Owl, with which I am unfamiliar.

In an interesting account of territorial behavior in the Great Horned Owl, Loye Miller (1930, p. 290) stated that late in the evening the female of a pair near a camp in California uttered a "cat-like 'squawk.'" Evidently the bird was believed to be of this sex, because it also uttered a high-pitched hoot. In the literature one finds a few references to a "scream" given occasionally by this species of owl. Perhaps this is the cry heard by Miller and also by us. Miller's observation was in late June.

Bent (1938, p. 305) quotes the late Clarence F. Stone regarding observations of two Great Horned Owls that "gave vent to rather terrifying and horrid screams" at intervals of four to six times a minute. He was able to determine that they were young birds giving hunger cries as they followed their parents around, begging for food. "At no time did I hear the adult owls utter anything but the hooting owl language." Stone heard these screaming cries as late as October in New York, where the young owls had probably been on the wing since early May. It has recently been learned (Southern, Vaughan, and Muir, 1954) that the young of the Tawny Owl (*Strix aluco*) fledge in mid-May in England but are dependent on their parents for food until mid-August, when the old birds

rather abruptly desert them. During the period of dependency they give their food cry a great deal. I once was able to locate two young Horned Owls which had left the nest a few days before by their harsh cries, uttered towards sunset, from a perch in the top of a tree some distance from the nest. These cries did not seem as loud as the ones heard in Florida, but were otherwise similar, so far as I can remember.

It seems unlikely that the owl heard in Florida at the end of December was a young bird, and Miller was of the opinion that the two he heard about his camp were a pair on territory. It is possible that the adult female, at least, of this species of owl retains the screaming cry as a part of courtship or territorial behavior, perhaps associated with courtship feeding.

BARRED OWL (*Strix varia*)

I had assumed that the Archbold property was too dry to attract this swamp-loving species and so was pleased on January 6 when a fine individual flushed from a tangle of vines in the northwest corner of the property.

FAMILY CAPRIMULGIDAE, NIGHTJARS

No members of this family were observed, but the Chuck-Will's-Widow (*Caprimulgus carolinensis*) is a common summer resident, and a few may winter. Occasional wintering examples of the more northerly nesting Whip-poor-will (*C. vociferus*) may also be expected.

FAMILY ALCEDINIDAE, KINGFISHERS

BELTED KINGFISHER (*Megasceryle alcyon*)

Remington and his son observed a Kingfisher along the main drainage ditch in early January of both 1955 and 1956.

FAMILY PICIDAE, WOODPECKERS

FLICKER (*Colaptes auratus*)

The Flicker prefers rather more open country than is found over most of the Station, and it was not until January 8 that I saw one; it was flying across the cleared area near the buildings. Hartman collected a Flicker on Red Hill on January 28.

PILEATED WOODPECKER (*Dryocopus pileatus*)

In 1943 I observed one of these woodpeckers on the property but saw

no signs of the species on my later visit. In Florida they are said to make their headquarters in the cypress hammocks but to range over the drier pine woods to some extent. Probably the increased clearing in the Lake Placid area for the cultivation of citrus fruit has somewhat isolated the Station from any stronghold of this species.

RED-BELLIED WOODPECKER (*Centurus carolinus*)

This noisy woodpecker is by all means the most numerous of the family. Although most common in clearings around the buildings or on Red Hill, it is to be heard and seen anywhere on the property. One or two Red-bellied Woodpeckers came to the lawn to pick up bits of scratch feed, and others were seen to probe the large blossoms of the *Bombax* tree, apparently for nectar. Another was carrying one of the large buds of this tree in its bill and then started to open it, but it fell to the ground. Bent (1939, pp. 240-243), in his summary of the food of this woodpecker, mentions no instances of its securing nectar from flowers. He does, however, quote observers who have seen it taking sweet sap from a trough and also from the borings of sapsuckers. It has a habit of digging holes in oranges and sucking the juice.

On January 7 a loud tapping heard outside our bungalow emanated from one of these woodpeckers which was drilling a hole just under the eaves. It had completely cut through the board, though the hole was not yet large enough to admit the bird's body. Years ago Allan R. Phillips called my attention to an individual of the related Gila Woodpecker (*C. uropygialis*) that was working on a roosting hole in a cottonwood tree in July, well after the nesting season. It is possible that woodpeckers of this genus build or enlarge such roosting or nesting holes at any time of the year.

RED-HEADED WOODPECKER (*Melanerpes erythrocephalus*)

One was seen on January 7, flying from the clearing around the buildings off to the west, away from the property.

YELLOW-BELLIED SAPSUCKER (*Sphyrapicus varius*)

The Sapsucker is a fairly common winter visitor on the Station. I encountered it only in areas changed by human occupation. Two or three were found around the buildings, and I saw another in the silk-cotton tree, although it was not observed to probe the flowers, as did the Red-bellied Woodpeckers. Another Sapsucker flew from an orange grove east of the property across into the woods.

RED-COCKADED WOODPECKER (*Dendrocopus borealis*)

I recorded the Red-cockaded Woodpecker in the area in 1943, and there is a specimen from the Station in the small collection there. In 1955 I was unable to find a trace of this species, and, if it still exists, the individuals must be few and far between. According to Sprunt (1954, p. 281), this woodpecker has been much reduced in southern Florida by logging of the pine woods.

I also failed to see either the Downy (*D. pubescens*) or the Hairy (*D. villosus*) Woodpecker on the property, but the former was observed a few times in the spring of 1943.

FAMILY TYRANNIDAE, FLYCATCHERS

PHOEBE (*Sayornis phoebe*)

The Phoebe is a common winter resident on the Archbold Station as elsewhere in Florida. One finds it, singly, on conspicuous perches in small open areas or along the fire lanes anywhere on the property. Usually it utters only its rather petulant "chip," but sometimes on a sunny morning one will sing a few times. Once a pair flew up excitedly together and uttered rapid chirping notes.

FAMILY HIRUNDINIDAE, SWALLOWS

TREE SWALLOW (*Iridoprocne bicolor*)

The Tree Swallow is a common winter bird in the area. On December 29, 25 or 30 had gathered on the telephone wires along the main road at the southern end of the property. It is not unusual to see scattered birds coursing above the tops of the trees, usually in a more or less direct course.

FAMILY CORVIDAE, CROWS AND JAYS

BLUE JAY (*Cyanocitta cristata*)

Blue Jays are fairly common. They are frequently seen near the buildings, where they are attracted by the scratch feed provided.

SCRUB JAY (*Cyanocitta coerulescens*)

The Florida Scrub Jay seemed to be somewhat less common than when I studied this species in 1943. Up to half a dozen, however, would gather on the lawn to feed on the scratch feed, and pairs were occasionally seen along the fire lanes on other parts of the property.

A comparison of the Blue Jay and the Florida Scrub Jay provides a good example of innate differences in behavior. The latter is extremely bold and fearless, while the Blue Jay is never so confident. In my earlier paper on the Scrub Jay (1944b) I neglected to mention Rand's (1942, p. 521) interesting observations in the same area of the robbing of a Thrasher's nest by a pair of Scrub Jays, following intense combat, and of another Scrub Jay that pursued a Mockingbird and took a cocoon away from it.

COMMON CROW AND FISH CROW

(*Corvus brachyrhynchos* and *C. ossifragus*)

The Station is ecologically better suited to the Common Crow than to the Fish Crow, and most of the individuals of this genus occasionally seen flying about are probably of that species. On January 1, however, three birds flying over the woods and cawing noisily were definitely *ossifragus*.

FAMILY PARIDAE, TITMICE

TUFTED TITMOUSE (*Parus bicolor*)

Rand and Höst (MS) report seeing a few on the Station, without giving the dates. The Titmouse is rather irregular in distribution in southern Florida and might occur as a winter straggler or as a breeding species.

FAMILY SITTIDAE, NUTHATCHES

BROWN-HEADED NUTHATCH (*Sitta pusilla*)

This nuthatch might be expected on the property, but I found no trace of it either in 1943 or during my later visit.

FAMILY TROGLODYTIDAE, WRENS

HOUSE WREN (*Troglodytes aedon*)

The scolding of House Wrens from the palmettos and other thick cover is a common sound on the Station in winter, especially in areas near buildings or clearings. At this season they very seldom give one an opportunity to see them.

CAROLINA WREN (*Thryothorus ludovicianus*)

On January 6 a pair of noisy Carolina Wrens protested my presence in

the northwestern part of the property. They were not seen elsewhere or on other visits to this area.

FAMILY MIMIDAE, MOCKINGBIRD

MOCKINGBIRD (*Mimus polyglottos*)

The Mockingbird is one of the characteristic birds of the area. While more common near the roads and buildings, it is encountered almost anywhere along the paths and fire lanes. Only once in winter (January 5) was an individual heard to sing and then in a very desultory way.

CATBIRD (*Dumetella carolinensis*)

A Catbird or two were present in the more dense vegetation at the northwestern corner of the Station and were heard on every visit to that area. On January 9 a specimen, apparently killed by a car in the vicinity, was left at the headquarters building. It was a male with minute gonads and weighed 38.3 grams. The stomach was filled with bluish black holly berries.

BROWN THRASHER (*Toxostoma rufum*)

On January 1 a Brown Thrasher hopped onto an open perch near one of the cottages and then flew to hiding where its alarm note could be heard. This was the only time the species was encountered. Hartman collected one on Red Hill in winter.

FAMILY TURDIDAE, THRUSHES

ROBIN (*Turdus migratorius*)

The Robin is one of the most common winter birds on the Archbold Station, though its numbers vary from day to day. They move around a good deal, but a few at least will be seen during a walk of an hour or two. On the afternoon of December 31 two or three hundred were noticed in a period of an hour or so in the late afternoon. Many of these were near the ground, probably feeding on the berries of holly. Only once was a Robin noticed on the lawn in the manner so typical of its summer behavior in the north. Brief snatches of song were heard a few times.

BLUEBIRD (*Sialia sialis*)

No Bluebirds were observed, but they undoubtedly occur from time to time.

FAMILY SYLVIIDAE, GNATCATCHERS AND KINGLETS

BLUE-GRAY GNATCATCHER (*Polioptila caerulea*)

The Blue-Gray Gnatcatcher is a fairly common winter bird on the Station and is distributed in all parts of the area, except where brush is scarce or lacking. It is frequently in the company of warblers, kinglets, or White-eyed Vireos.

RUBY-CROWNED KINGLET (*Corthylio calendula*)

The Ruby-crowned Kinglet is another fairly common winter bird, often seen in association with other species of small size.

FAMILY LANIIDAE, SHRIKES

LOGGERHEAD SHRIKE (*Lanius ludovicianus*)

This Shrike nests along the roads and fences on the property. I saw only one individual actually on the property during the course of my winter field work.

FAMILY VIREONIDAE, VIREOS

WHITE-EYED VIREO (*Vireo griseus*)

The White-eyed Vireo is a common resident bird on the Station away from the cleared areas.

BLUE-HEADED VIREO (*Vireo solitarius*)

The Blue-headed Vireo is an uncommon winter resident. One was noted on two occasions in the northwestern portion of the Station, and another was seen on the hill. One of those observed was flying out after insects which it caught with an audible snap of the bill.

FAMILY PARULIDAE, WOOD WARBLERS

ORANGE-CROWNED WARBLER (*Vermivora celata*)

The Orange-crowned Warbler was fairly common in the shrubbery in the northwestern portion of the Station, where it could be observed to excellent advantage almost at arm's length.

MYRTLE WARBLER (*Dendroica coronata*)

The Myrtle Warbler is a common winter resident on the Station, as elsewhere in Florida.

YELLOW-THROATED WARBLER (*Dendroica dominica*)

A few Yellow-throated Warblers were wintering in the northwestern part of the area. I also saw one, probably in company with one or two others, in the sand pines along the eastern boundary of the property.

PINE WARBLER (*Dendroica pinus*)

A few Pine Warblers were noticed in the northwestern area. Hartman collected one on Red Hill on January 28.

PRAIRIE WARBLER (*Dendroica discolor*)

The Prairie Warbler is casual in Florida in the winter, but one fine male was wintering in the northwestern area, where it was observed on two occasions. Hartman notes that he collected one on Red Hill on January 1, 1946.

PALM WARBLER (*Dendroica palmarum*)

Sprunt (1954, p. 411) has remarked that the Palm Warbler may be the most common small bird in Florida during the winter months. Much of the Archbold Station is too covered with vegetation for its tastes, but it was a very common bird near the buildings and also in the gardens and orchards on the hill. More occasionally it is seen elsewhere along the boundaries of the property or the open fire lanes. No examples of the Yellow Palm Warbler were definitely identified.

MARYLAND YELLOWTHROAT (*Geothlypis trichas*)

The Yellowthroat occurs in fair numbers on the property in winter. There were a few in the moister northwestern parts of the Station, and others in the weedy fields on the hill. Occasional individuals are to be seen in the palmetto thickets on the drier parts of the property.

FAMILY ICTERIDAE, BLACKBIRDS

RED-WINGED BLACKBIRD (*Agelaius phoeniceus*)

A flock of from 25 to 100 Red-winged Blackbirds occurred regularly about the buildings, where they gathered on the lawn to eat the scratch feed put out each day. A very high percentage of these birds were males. Of 16 trapped, weighed, and released, only one was a female, and often no females at all would be present in a flock of 40 to 50. On the afternoon

of January 9 I saw a female Redwing with a flock of Robins in the pines in another part of the Station, but this is probably not the answer to their absence near the buildings. Of the five male birds, three appeared from the plumage to be birds of the year.

Data for the individuals examined are as follows :

Weights (in grams)

12 adult males	47.7-59.7 (53.1)
3 first year males	54.0-55.2 (54.5)
1 female	43.0

Wing length (in mm.)

10 adult males	110-118 (114.4)
3 first year males	107-111 (109.3)

These measurements suggest that first year males in winter are as heavy as adult males, but have shorter wings. Perhaps they are not quite full grown when they acquire the first winter plumage and attain full weight after the primaries have ceased to grow.

For comparison, Drs. J. Van Tyne and R. Storer have been kind enough to send me the following weights of specimens in the collection of the University of Michigan from Washtenaw and Jackson counties in that state :

Weights (in grams) of known breeding birds

8 males	62.2-70.3 (66.9)
9 females	42.5-50.4 (45.5)

Weights (in grams) of all adult Michigan specimens, including those listed above and also perhaps a few migrants

26 males	60.0-80.1 (67.8)
18 females	38.9-50.4 (44.4)

Comparison of the breeding males from Michigan with the Florida males shows that the weight of the latter is 79.4 per cent of that of the Michigan birds, while the corresponding figure for the wing lengths, calculated from the measurements given by Ridgway (1902, pp. 331, 333) for *phoeniceus* and *floridanus* is 93.1 per cent.¹ As would be expected, the difference in weight is greater than that in the linear wing length. The difference seems less in the females, but only one of this sex was weighed of the Florida race.

I published a few other comparisons of weights of northern and south-

¹ The wing lengths given above were based on measurements of live birds with a straight rule, and hence it was thought best to use Ridgway's figures for both Florida and northern birds. The flock at the Archbold Station, in so far as the individuals examined were concerned, seemed to be of the race *floridanus*.

ern races, based in part on specimens from the Archbold Station earlier (Amadon, 1944a).

In the evening, about an hour before dark, the Redwings would begin to gather in tall pine trees or, more frequently, on a high television aerial, where they were conspicuous in the rays of the setting sun. Small groups of from two or three to 15 would then begin to break off and fly 100 yards or so across the tracks and off the property to the west, where they would suddenly dive down from a height of 30 or 40 feet with or without a little preliminary circling, into a dense clump of palmetto, perhaps 50 feet in diameter, where they spent the night (fig. 5). There would be an audible rustle of the brittle palmetto leaves as the birds plunged precipitously into them, but there was a minimum of noise, and I never heard any call notes whatsoever from the birds in the roost, nor did they ever fly about after entering it. The entire process seemed to be conducted in a manner that makes it highly inconspicuous. On two occasions single birds left the flock and flew over to spend the night in smaller patches of palmetto away from the main roost. Sometimes small flocks of blackbirds flying north were attracted to the ones that had gathered preparatory to going to roost and used the same roost.

Through the courtesy of Dr. Charles Sibley I have examined an account of roosting in the Redwing written by John T. Emlen (MS) in an unpublished thesis. His observations in northern marshes are in general comparable: the birds gather noisily in trees near the roosts and then fly in smaller parties to the rushes or cattails in which they spend the night. Sometimes, however, some of them alight on top of the vegetation in the roosts and then drop down, or perhaps fly back to the trees to return later.

PURPLE GRACKLE (*Quiscalus quiscula*)

The grackle had been a common bird near the Station buildings when I was there in the spring of 1943, so I was surprised to see none at all among the Red-winged Blackbirds and other species feeding on the lawn in the winter. On the evening of January 4 I saw a single grackle, and two nights later a small group were uttering their creaking notes in a pine near by, but a day or two later they were gone. Elsewhere, in several days of traveling around Florida, I recall only one flock of this species. Apparently in the winter it is rather local and perhaps vagrant in distribution.

BROWN-HEADED COWBIRD (*Molothrus ater*)

On January 1 a single brown immature or female cowbird perched

with the Redwings in a pine tree near the building. A few days later Archbold reported a bird with the Redwings that was perhaps the same individual.

EASTERN MEADOWLARK (*Sturnella magna*)

Meadowlarks occur in the more open areas west and north of the Station and probably visit open areas on the property once in a while. Hartman collected a female weighing 71 grams there on February 12.

FAMILY FRINGILLIDAE, SPARROWS

CARDINAL (*Richmondia cardinalis*)

The Cardinal is a common bird on the Archbold Station, especially near the buildings and gardens and in the moister areas.

PAINTED BUNTING (*Passerina ciris*)

Rand and Höst (MS) recorded this bird on the Station, probably in winter.

COMMON GOLDFINCH (*Spinus tristis*)

Never more than three or four goldfinches were noted at a time, but they move around a great deal, uttering the unmistakable call notes. A few were almost always present on Red Hill, and, surprisingly enough, were seen on some occasions to probe the blossoms of the *Bombax* tree, presumably for nectar. Elsewhere they were found chiefly in the trees and gardens near the buildings.

BROWN-SIDED TOWHEE (*Pipilo erythrophthalmus*)

Towhees are common winter birds at the Station, more often heard than seen. They preferred especially the dense stands of palmetto along the main roads, where their noisy scratching among the dried, brittle vegetation often called attention to them.

PINE-WOODS SPARROW (*Aimophila aestivalis*)

This sparrow was observed in the spring of 1943, but I found no trace of it in the winter. Probably it prefers the more grassy, lower, pine flat-woods, but it may well occur on the Station from time to time.

CHIPPING SPARROW (*Spizella passerina*)

A small flock of wintering Chipping Sparrows was a regular feature in the fallow fields and open areas among the orange groves on top of the

hill. Another group of three or four was observed on two occasions in the fire lane along the eastern edge of the property, where they ranged into an adjoining orange grove.

SONG SPARROW (*Melospiza melodia*)

The Song Sparrow is said to be relatively uncommon this far south in Florida. One was observed on December 31 at the northern end of the Station, and another was feeding behind our bungalow two or three days later but was not seen again.

NESTING SPECIES

As noted in the Introduction, the following lists of nesting birds and of transients are not the result of intensive field work and are subject to later expansion, particularly as regards the transient visitors. The lists are based on my own observations in March and April of 1943, incidental to other work; upon the previously mentioned manuscript list of Rand and Höst, which deals mostly with areas off the Station; and upon verbal communications from the Station personnel and inferences from general knowledge of Florida bird life (see Sprunt, 1954). Technical names are given only for species not mentioned above. Species marked with an asterisk are permanent residents, sometimes supplemented in winter by migrants.

Red-tailed Hawk*

Sparrow Hawk*

Bobwhite*

Mourning Dove*

Ground Dove*

Yellow-billed Cuckoo, (*Coccyzus americanus*): one recorded on April 21, 1943, perhaps a migrant

Great Horned Owl*

Screech Owl*

Chuck-Will's-Widow: perhaps some winter

Common Nighthawk (*Chordeiles minor*): in 1943, first noticed on April 9 and soon became common

Ruby-throated Hummingbird (*Archilochus colubris*): workmen reported one in the spring of 1943, but it may not have remained to nest

Eastern Flicker*

Red-bellied Woodpecker*

Red-headed Woodpecker*: has nested just off property

Downy Woodpecker*: probably has nested

Red-cockaded Woodpecker*: formerly nested but may no longer do so

Kingbird (*Tyrannus tyrannus*): several observed in spring which may have been migrants, but I was told that it nests

Crested Flycatcher (*Myiarchus crinitus*)

Purple Martin (*Progne subis*): in 1943 there was a colony in a birdhouse
 Blue Jay*
 Scrub Jay*
 Common Crow*: probably nests on property
 Carolina Wren*: assumed to nest
 Mockingbird*
 Brown Thrasher*
 Loggerhead Shrike*
 White-eyed Vireo*
 Yellow-throated Warbler: may nest; one in full song on April 21
 English Sparrow (*Passer domesticus*)*: one pair around buildings in 1943
 Common Grackle*: assumed to nest
 Cardinal*
 Brown-sided Towhee*
 Pine-Woods Sparrow*: probably nests

Another category is of species that nest in this part of Florida and occasionally appear on the Station or fly over it. Among those that have been thus observed are the following:

Great Blue Heron*
 Greater Egret (*Casmerodius albus*): seen by Remington
 White Ibis (*Eudocimus albus*)*
 Turkey Vulture*: may nest
 Black Vulture*
 Swallow-tailed Kite (*Elanoides forficatus*)
 Osprey (*Pandion haliaetus*)
 Bald Eagle (*Haliaeetus leucocephalus*)*
 Fish Crow*
 Red-winged Blackbird*: may nest on Station
 Meadowlark*

TRANSIENT SPECIES

The following have been observed:

Chimney Swift (*Chaetura pelagica*)
 Barn Swallow (*Hirundo erythrogaster*)
 Black-and-White Warbler (*Mniotilta varia*)
 Parula Warbler (*Parula americana*)
 Cape May Warbler (*Dendroica tigrina*): several seen on April 22, 1943
 Black-Poll Warbler (*Dendroica brevifrons*)
 Prairie Warbler: a few winter
 Redstart (*Setophaga ruticilla*)
 Bobolink (*Dolichonyx oryzivorus*)
 Indigo Bunting (*Passerina cyanea*)

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